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SUBJECT: DAY 2: U.S.-SOUTH AFRICA NONPROLIFERATION AND
DISARMAMENT DIALOGUE: NUCLEAR SECURITY AND SIDEBAR
MEETINGS WITH SA DOE, NECSA

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SUMMARY

[1](#)1. (SBU) Day 2 discussions of the U.S.-South African Nonproliferation and Disarmament Dialogue focused on technical level nuclear security issues. DOE/NNSA, NRC, and State gave a series of presentations on areas of cooperation. The United States invited the SAG to visit U.S. nuclear facilities later in the year to share best practices on safety, security, and safeguards. The South Africans agreed to consider a U.S. requested physical protection consultation (including a site visit) for the Pelindaba site, which stores U.S.-origin spent nuclear fuel. This would help fulfill commitments, per USG interpretation, in the bilateral Agreement for Cooperation Concerning Peaceful Uses of Nuclear Energy ("123 Agreement").

[1](#)2. (SBU) The SAG appeared ready to move forward soon with specific cooperative security activities, including South African Department of Energy and the Nuclear Energy Corporation of South Africa (NECSA) supply of LEU-based Molybdenum-99 to the United States. Progress was also made on the removal of U.S.-origin spent nuclear fuel and the Megaports Initiative (for which the South African Cabinet is considering approval of an implementing agreement). The USG proposed additional and extended cooperation, including on regional nuclear and radiological security activities, "lab-to-lab" security assistance for Pelindaba, and consideration of possible bilateral nuclear safeguards cooperation. The United States will provide additional details for further consideration. Special Advisor Einhorn told representative from NECSA of U.S. interest in creating a new energy dialogue, to include discussion of nuclear and renewable energy. He also asked the SAG to complete the necessary steps to sign the draft bilateral agreement on civil nuclear energy research and development. The U.S. said it would welcome a public event to sign the agreement and announce the new Dialogue on the margins of the upcoming IAEA General Conference (Note: The agreement was signed, but the dialogue remains to be announced.)

DISCUSSION OF DOMESTIC U.S. NUCLEAR SECURITY EFFORTS

[1](#)3. (SBU) Dr. Bruce Mallett, Deputy Director of Operations at the U.S. Nuclear Regulatory Commission (NRC), explained changes and upgrades in physical security requirements for U.S. civilian nuclear sites since 9/11. Mallett discussed the importance of safety and security interface, as well as the importance of balancing between the two. He also discussed lessons learned from the U.S. implementation of

additional safety/security requirements and provided an overview of the NRC's "force-on-force" inspection program. Mallett acknowledged the cooperative relationship between the NRC and its South African counterpart, the National Nuclear Regulatory (NNR), and noted both agencies' intentions to continue cooperation in the area of physical security. Since the NNR does not have responsibility for materials security, the U.S. NRC would be willing to work with the South African DOE, which does.

¶4. (SBU) The DOE/NNSA Global Threat Reduction Initiative (GTRI) presented on its domestic efforts, lessons learned, and voluntary security upgrades at U.S. civilian (medical, educational, etc.) sites storing nuclear and radiological materials. DOE/NSA described the scope of U.S. domestic nuclear security efforts, including typical enhancements; lessons learned regarding security culture; infrastructure; alarm response; and sustainability, as well as secondary benefits of reactor conversions and the need for additional human resources beyond those planned. On radiological security, the GTRI outlined efforts, including recovering disused and/or orphan radioactive sources, and technical experts from Sandia National Lab and Pacific Northwest National Lab provided technical perspectives and lessons learned. GTRI also presented on the program's international nuclear and radiological security efforts, including those worldwide to convert HEU-fueled research reactors to the use

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of less-proliferation sensitive LEU fuel, and to repatriate
HEU fuels.

SOUTH AFRICAN COMMENTS ON THE STATUS OF SECURITY AT PELINDABA

¶5. (SBU) Minty and other South African officials briefed on SAG efforts to increase nuclear security at nuclear facilities since 9/11, and the November 2007 break-in at the Pelindaba facility. These facilities now had a clean bill of health on security. The SAG addressed its work with the IAEA in assessing and enhancing security at Pelindaba. The nuclear regulatory agency had performed a post break-in security assessment and "most" of the recommended actions had already been completed.

¶6. (SBU) During informal conversations, NECSA officials acknowledged that they need and are interested in assistance to improve nuclear security at Pelindaba. Joseph Shayi, NECSA General Manager for Risk and Infrastructure Management, specifically mentioned the need for:

- Additional volumetric sensors and cameras for his perimeter;
- Additional fence line for the perimeter;
- Response force training for his guard personnel;
- Emergency response training exercise that would include the police back-up forces; and
- Basic physical protection training for the guard force personnel, physical protection staff and some site managers.

¶7. (SBU) Shayi referenced the personnel dismissals and continued emphasis on employee accountability at Pelindaba. Shayi assumed his current position because his predecessor was terminated after the November 2007 break-in. Any future security incident would similarly result in his termination. The requested assistance could be provided with GTRI funding via a "lab-to-lab" effort between Sandia National Laboratories (SNL) and NECSA. As a next step, SNL would provide NECSA with a detailed proposal regarding areas for cooperation.

U.S. REQUEST FOR PHYSICAL PROTECTION CONSULTATIONS

18. (SBU) U.S. officials outlined U.S. nuclear security physical protection bilateral consultations with the 46 countries that possess U.S. origin nuclear materials. DOS officials stressed the broad scope of such consultations, as required under U.S. domestic law for countries with U.S.-origin nuclear materials, and as provided under the consultation provisions of the "123" Agreement for Peaceful Nuclear Cooperation with South Africa. U.S.-origin HEU spent fuel is still held at Pelindaba; South Africa last agreed to such a consultation in 1998. (Note: In 1998, the U.S. interagency delegation did not find Pelindaba's security to be consistent with the IAEA INFCIRC/225 recommendations and suggested several remedial actions. The USG does not have independent confirmation that South Africa made these or other security enhancements.) South African officials stated they would consider the United States proposal to conduct a follow-up physical protection visit. In response, Baker mentioned the offer to visit U.S. nuclear facilities, which was well-received. On the margins, Johann Kellerman, Deputy Director, Nuclear Disarmament and Nonproliferation, DICO, told a member of the U.S. delegation that such a visit was "contractual obligation" under the 123 Agreement and should not be a problem.

SOUTH AFRICAN INSIGHTS ON NUCLEAR FUEL STORAGE, STATUS AT
PELINDABA

19. (SBU) Joseph Shayi (NECSA) confirmed that the U.S.-origin and the South African-origin spent nuclear fuel assemblies are co-located in pipe storage. DOE/NNSA (via the GTRI program) and the SAG are planning to return approximately 50 U.S.-origin spent HEU fuel assemblies from the SAFARI-1 reactor at Pelindaba to the United States in early 2011. As requested by South Africa as part of the agreement to return this spent fuel, GTRI committed to help train South African personnel in all aspects of nuclear materials handling and transport, as well as in overall project management. Both sides agreed to keep working on the contract for the removal of HEU fuel, with the goal of beginning implementation as soon as possible. As for the South African origin fuel, SAG officials intended to retain it in pipe storage and did not indicate any specific plans to recycle the fuel. They

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provided no information on the storage of its relatively
large domestically produced inventory of HEU recovered from
its weapons program.

AREAS FOR EXPANDED BILATERAL, REGIONAL NUCLEAR SECURITY
COOPERATION

110. (SBU) DOE/NNSA's GTRI program offered to assist South Africa with the security of radiological sources in South Africa and elsewhere in Africa, especially in the lead up to the South Africa-hosted June 2010 World Cup. The U.S. also proposed establishment of a National Nuclear Training Center to support South Africa's nuclear skills development and capacity-building needs. The U.S. also encouraged South African assistance to the Democratic Republic of Congo to remove U.S.-origin spent nuclear fuel and in other areas. The U.S. also raised the idea of possible cooperation to assist other African countries with radioactive source recoveries by deploying NECSA-developed Spent High Activity Recovery Sources mobile technology.

111. (SBU) The U.S. also presented briefings on Megaports Initiative efforts to install radiation detection equipment at the Ports of Durban and Cape Town, and to provide training on operation and maintenance of the equipment. South African

officials appeared very receptive to such cooperation. They confirmed that the necessary implementing Memorandum of Understanding agreement was before the South African Cabinet, with approval expected in the near future.

¶12. (SBU) Other areas of expanded cooperation discussed included Commodity Identification Training and export control collaboration, bilateral nuclear safeguards, and nuclear nonproliferation forensics cooperation. The U.S. thanked the SAG for arranging the May 2009 consultative visit on Commodity Identification Training and said it looked forward to the next collaboration in November.

¶13. (SBU) In the DOE/NNSA presentation on the International Nuclear Safeguards Engagement Program, U.S. officials emphasized that such cooperation would not jeopardize a country's work with the IAEA. In fact, such cooperation allows both sides to better implement their IAEA nuclear safeguards obligations (via cooperation on safeguards technology and approaches in areas of mutual interest). Minty welcomed the clarification, requested a full annotated copy of the presentation, and would consider these issues. (Note: South African officials have not been receptive to establishing a formal, or even informal, dialogue on safeguards R&D cooperation. Minty has made clear the SAG preference that such cooperation be done through direct SAG cooperation with the IAEA.)

MO-99 ISOTOPE PRODUCTION

¶14. (SBU) Both sides discussed the global shortage of the Molybdenum-99 (Mo-99) medical isotope, required for medical diagnostic procedures. After the shutdown of Canadian reactors, South Africa became the top global Mo-99 producer (utilizing HEU targets) and has increased its production by between 20-30 percent. South African officials outlined their plans to convert their production process from HEU to less proliferation-sensitive LEU, and declared it would be technically feasible to do so in less than two years. DOE/NNSA officials agreed to develop a joint paper on options for expediting this conversion process with the required U.S. FDA approval and possible GTRI financial assistance.

U.S. INVITE FOR SAG DELEGATION VISIT TO U.S. NUCLEAR FACILITIES

¶15. (SBU) In closing, Baker reiterated the invitation for SAG officials to visit U.S. nuclear facilities to observe U.S. nuclear security and safeguards practices. The USDEL suggested a November 2009 visit, as part of the next round of the Dialogue. Baker encouraged the SAG to provide input on an agenda, including potential dates, to help us develop a comprehensive and compelling tour. End of Day 2 discussions.

SIDEBAR MEETING WITH SA DOE ACTING DIRECTOR GENERAL NELISIWE MAGUBANE

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¶16. (SBU) South African Department of Energy Acting Director General Nelisiwe Magubane and Director for Nuclear Non-proliferation Elise Monale met with members of the U.S. delegation. Minty also attended, although he was not invited. Einhorn gave a brief overview of the proposed senior-level energy dialogue on nuclear and renewable energy issues. He outlined USG preferred outcomes to be achieved on the margins of the upcoming IAEA General Conference: signing the draft nuclear energy R&D agreement, announcing the new energy dialogue, and participation in the Sherpa planning meeting. Minty assured that South Africa would try its best.

Magubane said that there is a high level of interest in renewable energy issues in the SAG, as well as in nuclear energy issues. The SAG recently started cooperation with the Clinton Climate Change Commission on solar power and has a standing invitation to visit a U.S. solar plant. SAG is considering its options to build bigger plants and replace its reliance on coal.

¶17. (SBU) Al Burkart, Deputy Director of the Office of Nuclear Energy, Safety, and Security Affairs (State), gave an overview of U.S. efforts within the IAEA milestone project. He presented the USG offer to team up with South Africa and the IAEA to co-host a workshop or a series of workshops at both higher political and technical levels for African countries considering civil nuclear energy infrastructure development. Magubane welcomed the suggestion and separately asked how customs officials could be trained to identify fissile material and stop illicit trafficking. Andrew Bieniawski, Assistant Deputy Administrator for Global Threat Reduction (DOE/NNSA) gave a brief overview of the State Department Nuclear Smuggling Outreach Initiative (NSOI).

¶18. (SBU) Einhorn gave a brief overview of the changing nature of GNEP and encouraged South Africa to consider attending the October GNEP meeting as an observer. Magubane would consult with the Minister about the meeting, noting that it "doesn't hurt to learn." Baker provided a brief overview of the Day 2 nuclear security talks and Holgate offered an overview of the upcoming Nuclear Security Summit.

SIDEBAR MEETING WITH NECSA CEO ROB ADAMS

¶19. (SBU) U.S. officials met with NECSA CEO Rob Adams to discuss nuclear security cooperation. Regarding Molly 99 production, Adams explained that NECSA has already increased its supply to the United States, and would be willing to discuss additional opportunities in the U.S. market. The parties agreed to meet on the margins of the IAEA General Conference to develop an action plan to address U.S. needs. (Note: The meeting was held.) Adams welcomed the invitation to visit U.S. nuclear facilities where HEU and plutonium are stored to see U.S. nuclear security procedures, as well as a separate U.S. offer to provide nuclear security-related training to NECSA; Adams commented that adding a nuclear security component would improve NECSA's existing nuclear skills development center. He also informed the group that NECSA is on contract with the IAEA to collect sources in Africa (SHARS project). DOE/NNSA offered a nonpaper on expanded cooperation to secure sources in Africa. Finally, agreement was reached to develop a plan for "lab-to-lab" (via U.S. Sandia National Labs) cooperation at Pelindaba, to include security upgrades and training. Holgate gave a brief overview of plans for the upcoming Nuclear Security Summit, noting that industry involvement is being considered to address the issue holistically. End of Day 2 sidebar meetings.

POINTS OF CONTACT FOR FURTHER INFORMATION

¶20. (SBU) For further information, please contact State POC (ISN/RA) Krista Fisher (202-647-6793, fisherkk@state.gov, NNSA POCs Heather Looney (202-586-6772, Heather.Looney@nnsa.doe.gov) or Andrew Bieniawski (202-586-0775, Andrew.Bieniawski@nnsa.doe.gov), or NRC POC Cindy Rosales-Cooper (301-415-1168, Cindy.Rosales-Cooper@nrc.gov).
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